



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,414	11/08/2001	Steve K. Hsia	11030.02	3119

20686 7590 07/11/2003

DORSEY & WHITNEY, LLP  
INTELLECTUAL PROPERTY DEPARTMENT  
370 SEVENTEENTH STREET  
SUITE 4700  
DENVER, CO 80202-5647

EXAMINER

HO, HOAI V

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/035,414

Applicant(s)

HSIA ET AL.

Examiner

Hoai V. Ho

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 6. 6) ☐ Other:

1. This office acknowledges receipt of the following items from the Applicant:  
Information Disclosure Statement (IDS) was considered.
2. Claims 1-6 and 13 are presented for examination.

*Election/Restriction*

3. Claims 7-12 and 14 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention/species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 5, and 13 are rejected under 35 U.S.C. 102(ab) as being anticipated by Brahmbhatt U.S. Patent No. 5,457,652.

Figures 3 and 4 of Brahmbhatt are directed to a memory comprising: a memory array 58) having a plurality of memory cells (fig. 3) coupled to a plurality of word select lines (WL0-WLN), each of the memory cells having an adjustable threshold voltage and a gate (54 of fig. 2) overlying a channel (44A), and being programmable using channel-initiated secondary electron injection; a voltage source (fig. 4) for applying a first negative voltage (-3 to -4V) to the channel (44A or P Well); a voltage source for establishing a voltage differential across the respective channels of at least a first and a second of the memory cells (col. 5, Program 'single

supply' in Table 1 and lines 64-66), the potential differential being sufficient to generate channel-initiated secondary hot electrons (col. 4, line 2-6) in the respective channels thereof; a voltage source (12V) for applying a second voltage to the gate of the first memory cell, the second voltage having a polarity and magnitude relative to the first voltage sufficient to attract the hot electrons and change the threshold voltage of the first memory cell to a programmed state; and a voltage source (-3 to -4V, col. 5, lines 64-66 and col. 6, lines 41-45) for applying a third voltage to the gate of the second memory cell, the third voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage of the second memory cell. Also see col. 6, lines 34-45.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brahmhatt U.S. Patent No. 5,457,652 in view of Keeney et al. U.S. Patent No. 5,553,020 (IDS).

Table 1 in column 5 of Brahmhatt discloses the fourth voltage (source) is about 0 volts except the first voltage is about -2 volts, the second voltage is in a range of about 7 volts to about 8 volts, the third voltage is about -2 volts, the fourth voltage is about 0 volts, and the fifth voltage is about 4 volts.

However, Table 1 in column 5 of Brahmbhatt discloses the first voltage is about -3 to -4 volts, the second voltage is in a range of about 12 volts, the third voltage is about -3 to -4 volts and the fifth voltage is about 3 volts instead.

Or Keeney discloses, staring at column 6, lines 42-67 and Figure 8, discloses the first voltage is about -2 volts, the second voltage is in a range of about 5-12 volts, the third voltage is about -2 volts, the fourth voltage is about 0 volts, and the fifth voltage is about 6.5 volts.

These voltage ranges were art-recognized equivalents of workable ranges at the time of the invention for causing hot electron injection in the program operation of the memory cells, one of ordinary skill would have found it obvious to use either Brahmbhatt or Keeney teachings or the claimed invention to apply to the first to fifth voltages to the memory cells for causing hot electron injection in programming the cells, since it have been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimun or workable ranges involves only routine skill in the art.

8. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Schreck et al. (5412603) discloses programming a memory cell array.

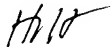
9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

Application/Control Number: 10/035,414  
Art Unit: 2818

Page 5

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (703) 308-4839. Other inquiries of this application should be called to (703) 308-0956 or the fax number (703) 308-7722.



H. Ho  
June 30, 2003



Hoai V. Ho  
Primary Examiner  
Art Unit 2818